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Authors: Bin Zhou, Faridoon, Xiabo Tian, Jian Li, Donglian Guan, Xing Zheng, Yu Guo, Wei Huang

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Communication

On-resin peptide ligation *via* C-terminus benzyl ester

Bin Zhou[a,b], Faridoon[b,c,*], Xiabo Tian[b], Jian Li[b,c], Donglian Guan[b,c], Xing Zheng[a], Yu Guo[a,*], Wei Huang[b,c,*]

[a] *Hunan Province Cooperative Innovation Center for Molecular Target New Drug Study, Institute of Pharmacy and Pharmacology, University of South China, Hengyang 421001, China*
[b] *CAS Key Laboratory of Receptor Research, CAS Center for Excellence in Molecular Cell Science, Center for Biotherapeutics Discovery Research, Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Shanghai 201203, China*
[c] *University of Chinese Academy of Sciences, Beijing 100049, China*

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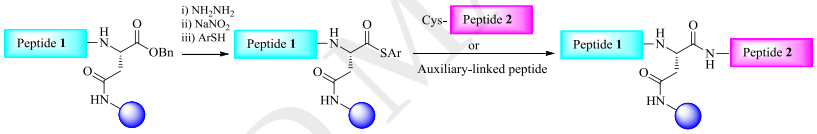
* *Corresponding Authors.
E-mail addresses: huangwei@simm.ac.cn (W. Huang); guoyuhy@126.com (Y. Guo); faridoon619@yahoo.com (Faridoon)

Graphical Abstract



Here, we reported a new approach of on-resin peptide ligation using C-terminal benzyl ester as the stabilized precursor of thioester, which enables both N-terminal elongation and C-terminal peptide ligation on a Rink Amide resin.

ABSTRACT

Here, we report a new approach of on-resin peptide ligation using C-terminal benzyl ester as the stabilized precursor of thioester, which enables both N-terminal elongation and C-terminal peptide ligation on a Rink Amide resin. On-resin native chemical ligation and auxiliary-assisted peptide ligation were successfully achieved. This method is compatible to both protected and unprotected peptide fragments and has potential application in poor water-soluble peptide ligation.

Keywords:
On-resin peptide ligation
Peptide benzyl ester
Native chemical ligation
Auxiliary-assisted peptide ligation
Peptide elongation

Proteins and peptides are vital components of living organisms and play crucial roles in massive biological and physiological processes [1]. Solid phase peptide synthesis (SPPS) [2, 3] is widely applied in chemical synthesis of peptides and proteins after over 50-year development. For long peptides containing more than 50 amino acids in their sequences, native chemical ligation (NCL) [4-7] of two peptides was usually employed with C-terminal peptide thioesters and N-terminal cysteinyl peptides. Both Boc-protecting